

1 What is claimed is:

1. A system for mounting an engine having an output shaft to a frame, comprising:

first and second bearings each connectable to the frame and the engine to form a pivotal axis about which said engine is free to rotate relative to said frame,

said pivotal axis passing near the center of gravity of the engine and aligned other than orthogonally to the axis of the engine output shaft, and

a load sensing transducer including parts connectable to said frame and said engine for resisting and measuring rotational forces between said engine and said frame about said pivotal axis,

said load sensing transducer having an axis of sensitivity on a plane other than any plane which includes the pivotal axis.

2. The system of claim 1, wherein:

said load sensing transducer measures rotational forces in only one direction.

3. The system of claim 1, wherein:

the first and second bearings are connectable to forward and rearward portions of the frame and engine and are in axial alignment to receive shaft portions on the pivotal axis at opposite ends of the engine.

4. The system of claim 1, wherein:

one of the bearings comprises bearing segments, each connectable to the engine and frame.
5. As in claim 4, wherein:

the bearing segments each having a first part guidably moveable with respect to a second part form a pivotal point on the pivotal axis.
6. As in claim 5, wherein:

one of said parts contains a rolling element guidably moveable in a slot in the other part.
7. The system of claim 4, wherein:

the other of said bearings comprises a compliant engine mount.
8. The system as in any one of claims 1 to 7, wherein:

the pivotal axis extends through the center of gravity.

9. A system for mounting an engine having an output shaft to a frame, comprising:
- first and second bearings each connectable to the frame and engine to form a pivotal axis about which said engine is free to rotate relative to said frame,
  - said pivotal axis aligned other than orthogonally to the axis of the engine output shaft, and so positioned that a conical volume formed by the center of one bearing and the circle defined by the surfaces of relative motion of the other bearing contains the center of gravity of the engine, and
  - a load sensing transducer including parts connectable to said frame and said engine for resisting and measuring rotational forces between said engine and said frame about said pivotal axis,
  - said load sensing transducer having an axis of sensitivity on a plane other than any plane which includes the pivotal axis.
10. The system of claim 9, wherein:
- said load sensing transducer measures rotational forces in only one direction.
11. The system of claim 9, wherein:
- the first and second bearings are connectable to forward and rearward portions of the frame and engine and in axial alignment to receive shaft portions on the pivotal axis at opposite ends of the engine.

12. The system of claim 9, wherein:

one of the bearings comprises bearing segments, each connectable to the engine and frame.

13. As in claim 12, wherein:

the bearing segments each having a first part guidably moveable with respect to a second part form a pivotal point on the pivotal axis.

14. As in claim 13, wherein:

one of said parts contains a rolling element guidably moveable in a slot in the other part.

15. The system of claim 12, wherein:

the other of said bearings comprises a compliant engine mount.

16. The system as in any one of claims 9 to 15, wherein:

the pivotal axis extends through the center of gravity.

17. A system for mounting an engine having an output shaft to a frame, comprising:
- first and second bearings each connectable to the frame and engine to form a pivotal axis about which said engine is free to rotate relative to said frame,
  - said pivotal axis aligned other than orthogonally to the axis of the engine output shaft, and
  - at least one of said bearings having rolling elements between the engine and frame , and
  - a load sensing transducer including parts connectable to said frame and said engine for resisting and measuring rotational forces between said engine and said frame about said pivotal axis,
  - said load sensing transducer having an axis of sensitivity on a plane other than any plane which includes the pivotal axis.
18. The system of claim 17, wherein:
- said load sensing transducer measures rotational forces in only one direction.
19. The system of claim 17, wherein:
- the first and second bearings are connectable to forward and rearward portions of the frame and engine and are in axial alignment to receive shaft portions on the pivotal axis at opposite ends of the engine.

20. The system of claim 17, wherein:
- one of the bearings comprises bearing segments, each connectable to the engine and frame.
21. As in claim 20, wherein:
- the bearing segments each having a first part guidably moveable with respect to a second part form a pivotal point on the pivotal axis.
22. As in claim 21, wherein:
- one of said parts contains a rolling element guidably moveable in a slot in the other part.
23. The system of claim 20, wherein:
- the other of said bearings comprises a compliant engine mount.
24. The system as in any one of claims 17 to 23, wherein:
- the pivotal axis extends through the center of gravity.

25. A system for mounting an engine having an output shaft to a frame, comprising:
- first and second bearings each connectable to the frame and the engine to form a pivotal axis about which said engine is free to rotate relative to said frame,
  - said pivotal axis aligned other than orthogonally to the axis of the engine output shaft, and
  - one of said bearing having a pivotal point outside of the space between the surfaces of relative motion of said one bearing,
  - a load sensing transducer including parts connectable to said frame and said engine for resisting and measuring rotational forces between said engine and said frame about said pivotal axis,
  - said load sensing transducer having an axis of sensitivity on a plane other than any plane which includes the pivotal axis.
26. The system of claim 25, wherein:
- said load sensing transducer measures rotational forces in only one direction.
27. The system of claim 25, wherein:
- the first and second bearings are connectable to forward and rearward portions of the frame and engine and are in axial alignment to receive shaft portions on the pivotal axis at opposite ends of the engine.

28. The system of claim 25, wherein:
- one of the bearings comprises bearing segments, each connectable to the engine and frame.
29. As in claim 28, wherein:
- the bearing segments each having a first part guidably moveable with respect to a second part form a pivotal point on the pivotal axis.
30. As in claim 29, wherein:
- one of said parts contains a rolling element guidably moveable in a slot in the other part.
31. The system of claim 28, wherein:
- the other of said bearings comprises a compliant engine mount.
32. The system as in any one of claims 25 to 31, wherein:
- the pivotal axis extends through the center of gravity.